

REMARKS

Claims 17, 18 and 20-28 are pending herein and are all finally rejected under either 35 USC 102 or 103 in view of Lewis (US 5,837,960) either alone or in combination with other references.

Independent claim 17 is amended herein to clarify that the process involves "preparing a powder bed having a first powder mix in a first region and a second powder mix in a second region, the first and second powder mixes differing from each other in at least one of chemical composition and powder particle size distribution." Support for the amendment can be found in the specification at paragraph 0022. Lewis fails to teach or to suggest this limitation, since Lewis describes a process for forming articles wherein particles are sprayed into a moving molten pool of material. The particles of Lewis are released, melted and deposited in a continuous process as a tool moves along a tool path. No powder bed having different powder mixes in different regions is prepared by Lewis; rather, the particles of Lewis are consumed as soon as they are released from the tool into the molten pool.

MPEP §2131 provides that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as complete detail as contained in the claim. The elements must be arranged as required by the claim. Since Lewis fails to describe the preparation of the claimed powder bed having first and second powder mixes, the rejection of independent claim 17 under 35 USC 102(b) has been overcome, and claim 17 and its dependent claims 18 and 20-28 are now in condition for allowance.

Claim 17 includes the further limitations of "forming a first region of the shaped object by a first laser sintering of the first powder mix; and forming a second region of the shaped object integral with the first region by a second laser sintering of the second powder mix." In contrast, Lewis does not describe a sintering process, but only a melting process. The Examiner states near the bottom of page 3 of the final Office Communication that he "considers that the incomplete melting is equivalent to sintering." However, this is an erroneous and unsupported conclusion. Sintering is a method for making objects from powder by heating the powder to below its melting point until its particles adhere to each other. (see excerpt from the on-line Wikipedia encyclopedia attached) In contrast, the unmelted powder of Lewis is collected and

returned to the powder container for reuse (Lewis column 7, lines 38-40). Powder particles which are not completely melted by the laser energy are melted by the heat of the molten pool of material (Lewis column 5, lines 64-67). Even if a particle remains somewhat unmelted within the pool, there is no evidence in Lewis or basis for a conclusion that any sintering of powder occurs, since the molten pool is controlled to be small and the re-solidification of the pool occurs quickly as the laser moves along the tool path (Lewis column 6, lines 8-28). Thus, it can not be said that Lewis teaches any sintering process, thereby further showing that Lewis does not support the rejection of independent claim 17 or its dependent claims.

Conclusion

For the foregoing reasons, it is respectfully submitted that the rejections set forth in the outstanding Office Action are inapplicable to the present claims. Accordingly, Applicants respectfully request that the Examiner reconsider the rejections and timely pass the application to allowance. All correspondence should continue to be directed to our below-listed address. Please grant any extensions of time required to enter this paper. The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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